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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,590	08/19/2003	Hiroyuki Kinugawa	Q76939	2939
23373	7590	08/22/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			RIDDLE, KYLE M	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/642,590

Applicant(s)

KINUGAWA, HIROYUKI

Examiner

Kyle M. Riddle

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 and 5-10 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Claim Objections

1. Claim 6 recites the limitation "the oil passage" in page 3, claim 6, lines 2 and 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.
2. Claim 7 recites the limitation "the oil passage" in page 3, claim 7, line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

It appears to the examiner that the oil passage in question is currently deleted from independent claim 1, and as such lacks antecedent basis.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claim 1, 3, 5-10 are rejected under 35 U.S.C. 103(a) as being obvious over Noguchi et al. (U.S. Patent 5,826,552) in view of Fujiwaki (U.S. Patent 5,901,674) or Mikame et al. (U.S. Patent 6,386,164).

Re claims 1, 3, 5, 7, 9, and 10, Noguchi et al. disclose a variable valve timing device comprising:

- an outer rotor 18 rotating synchronously with a crank shaft (column 4, lines 25-30);
- an inner rotor 22 fixedly mounted on one end portion of the cam shaft 12 for relative movement or rotation between the cam shaft 12 and the outer rotor 18 (column 4, lines 33-38);

- a locking pin or member valve 44 slidably fitted in retracting bore 40 of outer rotor 18 and, when aligned in a predetermined position with receiving bore 48 of inner rotor 22, locks the relative rotation of the inner and outer rotors 22, 18 between a most advanced position and most lagged position (column 5, lines 25-34 and Figures 2-4);

- a piston 60 as a closing member composed of a thinner contact portion and a thicker portion and slidably fitted axially in receiving bore 48 to eject or exclude the locking valve 44 against the urging force of spring 46 under the pressure of oil (hydraulically slidable) supplied to the receiving bore 48 (column 5, lines 37-44 and Figures 2-4);

- an engaging hole formed within receiving bore 48 between locking valve 44 and piston 60 (Figure 4B), the closure of the engaging hole creating contact between locking valve 44 and piston 60 resulting in allowed relative rotation of the inner rotor 22 with respect to the outer rotor 18 (column 6, lines 50-56 and Figures 3 and 4D).

Re claim 6, Noguchi et al. disclose a separate passage 50 supplying hydraulic pressure to the closing member or piston 60 which is different than delay and advance angle hydraulic passages 54, 56 for relative rotation (column 5, lines 30-39, column 6, lines 27-29, lines 44-49, and Figures 2 and 3).

Re claim 8, Noguchi et al. disclose some oil entering between the piston 60 and the locking valve 44 via passage 62 from intermediate passage 54a, the resulting oil pressure ejecting the locking valve 44 allowing relative rotation of the inner rotor 22 and the outer rotor 18 during low hydraulic pressure (column 6, lines 32-41 and Figure 4C).

Noguchi et al., however, fail to disclose a separate oil passage controlled separately from the oil passages for the advance and retard chambers, a control valve controlling the closing member, or the closing member specifically not extending from the engaging hole.

Fujiwaki teaches a variable valve timing device where the oil supply to and the oil drain from the pilot passage 13 for locking pin 60 are established by a second change-over valve 110 independent of the oil supply from the oil pump 120 to one of the advancing angle passage 11 and the delaying angle passage 12, thus providing stable oil pressure supply during initiation of or termination from the internal combustion engine (column 5, lines 45-63, Figures 1-6).

Noguchi et al. teach a closing member or piston 60 with a thick and thin portion (see Figures) for ejecting the locking valve 44 from the receiving bore (column 5, lines 37-44 and Figures 2-4). The figures show multiple positions of the piston 60 and locking valve 44, the most extended position for the piston 60 being flush with the two rotating members with the locking valve 44 preventing the piston 60 from standing out of the engaging hole or receiving bore 48. It would be an obvious choice to one of ordinary skill in the art to prevent the piston 60 from extending beyond the receiving bore 48 to prevent unnecessary wear, noise, and disruptive functioning of the valve mechanism.

Mikame et al. teach a variable valve timing (VVT) control apparatus with a VVT 12b composed of a hydraulic passage L1 for activating the lock pin and a hydraulic passage L2 for releasing the lock pin, the passages L1, L2 controlled separately from the advancement hydraulic passage P1 and the retardation hydraulic passage P2 by an oil switching valve (OSV) 40A based on a command from the ECU 65 (column 15, lines 11-30, Figures 9 and 10).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Fujiwaki or Mikame et al. in the variable valve timing device of Noguchi et al., since the use thereof would have provided a separate hydraulic pressure means for controlling the locking device and therefore be free of the pressure fluctuations that may occur during advancing and retarding operations.

Allowable Subject Matter

5. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 11 August 2005 have been fully considered but they are not persuasive.

7. On page 6 of the remarks, applicant suggests that the newly amended claims should be reconsidered and allowed but provided no specific arguments addressing the amended claims as to why they would be patentable over the prior art of record. Accordingly, the rejections given above cite the limitations and reasons why the specific claims are not allowable. Particular attention was given to the amended portions of independent claims 1 and 10 regarding the thin and thick portions of a closing member that does not stand out of the engaging hole. This is an obvious characteristic necessary for the piston 60 to function without impairing the operability of the valve mechanism disclosed by Noguchi et al., the details of which are indicated clearly above.

Communication

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (571) 272-4864. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

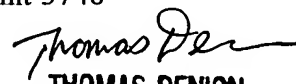
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kyle M. Riddle
Examiner
Art Unit 3748

kmr



THOMAS DENION
SUPERVISORY PATENT EXAMINER
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